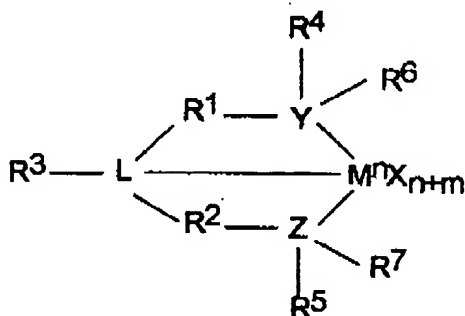


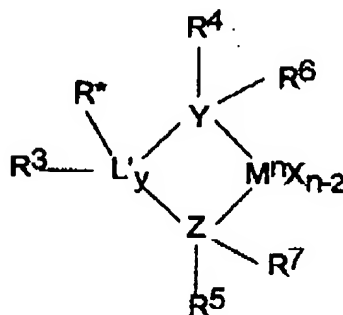
Application No.: 10/777,563
 Response dated: November 1, 2005
 Reply to Office Action October 13, 2005

Please amend the Claims as follows:

1. (Currently Amended) A process for polymerizing olefin(s) comprising combining said olefin(s) in the presence of a catalyst system comprising a Group 15 containing bidentate or tridentate ligated metal catalyst compound, wherein the process is conducted at a temperature from between 50° C to 200° C, and wherein the catalyst compound is represented by the formulae:



or



wherein M is metal;

each X is an aryl substituted alkyl leaving group;

y is 0 or 1;

n is the oxidation state of M;

m is the formal charge of Y, Z and L or of Y, Z, and L';

1999U029.Release.US.1.111.11.1.05.doc

Application No.: 10/777,563

Response dated: November 1, 2005

Reply to Office Action October 13, 2005

L is a Group 15 element;

L' is a Group 15 element or Group 14 containing group;

Y is a Group 15 element;

Z is a Group 15 element;

R¹ and R² are independently a C₁ to C₂₀ hydrocarbon group, a heteroatom containing group having up to twenty carbon atoms, silicon, germanium, tin, lead, or phosphorus;

R³ is absent, a hydrocarbon group, hydrogen, a halogen, or a heteroatom containing group;

R⁴ and R⁵ are independently an alkyl group, an aryl group, a substituted aryl group, a cyclic alkyl group, a substituted cyclic alkyl group, a cyclic arylalkyl group, a substituted cyclic arylalkyl group or a multiple ring system;

R¹ and R² may be interconnected to each other, and/or R⁴ and R⁵ may be interconnected to each other;

R⁶ and R⁷ are independently absent, hydrogen, an alkyl group, halogen, heteroatom or a hydrocarbyl group; [and]

R^{*} is absent, hydrogen, a Group 14 atom containing group, a halogen, or a heteroatom containing group; and

wherein said Group 15 containing bidentate or tridentate ligated metal catalyst compound is added to a polymerization reactor in one of a slurry, a solution, an emulsion, a dispersion or a suspension.

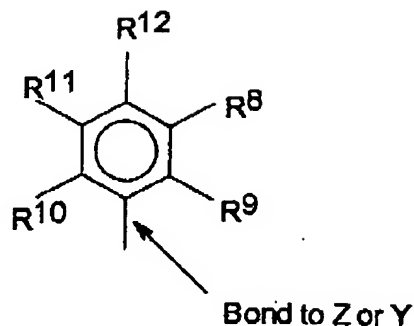
2. (Original) The process of claim 1 wherein R¹ and R² are selected from the group consisting of a C₁ to C₂₀ hydrocarbon group, a heteroatom containing group, silicon, germanium, tin, lead, and phosphorus.
3. (Original) The process of claim 1 wherein L or L' may also be bound to nothing, a hydrogen, a Group 14 atom containing group, a halogen, or a heteroatom containing group, and wherein each of the two Group 15 atoms are also bound to a cyclic group and may optionally be bound to hydrogen, a halogen, a heteroatom, a hydrocarbyl group, or a heteroatom containing group.
4. (Original) The process of claim 1 wherein R⁴ and R⁵ are represented by the formula:

1999U029.Reissue.US.1.111.11.1.05.doc

Application No.: 10/777,563

Response dated: November 1, 2005

Reply to Office Action October 13, 2005



wherein R^8 to R^{12} are each independently hydrogen, a C_1 to C_{40} alkyl group, a halide, a heteroatom, or a heteroatom containing group containing up to 40 carbon atoms, wherein any two R groups may form a cyclic group and/or a heterocyclic group, and wherein the cyclic groups may be aromatic.

5. (Currently Amended) The process of claim 4 wherein R^8 to R^{12} [R^9 , R^{10} and R^{12}] are independently a methyl, ethyl, propyl or butyl group and X is a substituted aryl group having greater than 10 carbon atoms.
6. (Currently Amended) The process of claim 4 wherein R^8 to R^{12} [R^9 , R^{10} and R^{12}] are methyl groups, and [R^8 and R^{11} are hydrogen] and X is a alkyl substituted with an aryl group.
7. (Original) The process of claim 4 wherein L, Y, and Z are nitrogen, R^1 and R^2 are a hydrocarbon radical, R^3 is hydrogen, and R^6 and R^7 are absent.
8. (Original) The process of claim 1 wherein L and Z are independently nitrogen, L' is a hydrocarbonyl radical, and R^6 and R^7 are absent.
9. (Cancel)
10. (Original) The process of claim 1 wherein the process is a continuous gas phase process.
11. (Original) The process of claim 1 wherein the process is a continuous slurry phase process.
12. (Original) The process of claim 1 wherein the olefin(s) is ethylene or propylene.
13. (Original) The process of claim 1 wherein the olefins are ethylene and at least one other monomer having from 3 to 20 carbon atoms.
14. (Original) The process of claim 1 wherein the catalyst system further comprises an activator.

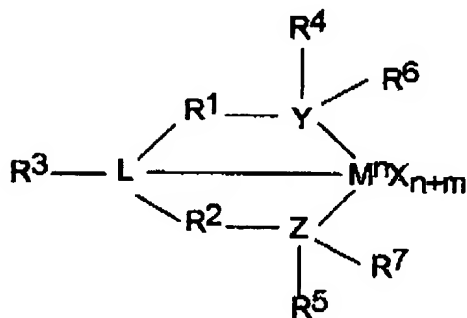
1999U029-Reissue.US.1.111.11.1.05.doc

Application No.: 10/777,563

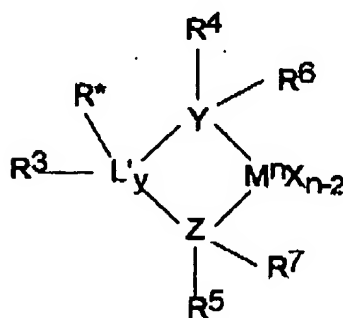
Response dated: November 1, 2005

Reply to Office Action October 13, 2005

15. (Previously Presented) The process of claims 1, 4, 6 or 14, wherein said Group 15 containing bidentate or tridentate ligated metal catalyst compound is spray dried.
16. (Previously Presented) The process of claim 15, wherein said M is zirconium or hafnium, where n is +4, and wherein X is benzyl.
17. (Previously Presented) A process for polymerizing olefin(s) comprising combining said olefin(s) in the presence of a catalyst system comprising a Group 15 containing bidentate or tridentate ligated metal catalyst compound, wherein the process is conducted at a temperature from between 50° C to 200° C, and wherein the catalyst compound is represented by the formulae:



or



wherein M is metal;

each X is an aryl substituted alkyl leaving group;

y is 0 or 1;

1999U029.Reissue.US.1.111.11.1.05.doc

- 5 -

Application No.: 10/777,563

Response dated: November 1, 2005

Reply to Office Action October 13, 2005

n is the oxidation state of M ;

m is the formal charge of Y , Z and L or of Y , Z , and L ';

L is a Group 15 element;

L' is a Group 15 element or Group 14 containing group;

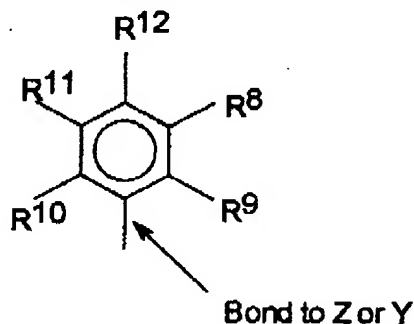
Y is a Group 15 element;

Z is a Group 15 element;

R^1 and R^2 are independently a C_1 to C_{20} hydrocarbon group, a heteroatom containing group having up to twenty carbon atoms, silicon, germanium, tin, lead, or phosphorus;

R^3 is absent, a hydrocarbon group, hydrogen, a halogen, or a heteroatom containing group;

wherein R^4 and R^5 are represented by the formula:



wherein R^8 to R^{12} are each independently hydrogen, a C_1 to C_{40} alkyl group, a halide, a heteroatom, or a heteroatom containing group containing up to 40 carbon atoms, wherein any two R groups may form a cyclic group and/or a heterocyclic group, and wherein the cyclic groups may be aromatic;

R^1 and R^2 may be interconnected to each other, and/or R^4 and R^5 may be interconnected to each other;

R^6 and R^7 are independently absent, hydrogen, an alkyl group, halogen, heteroatom or a hydrocarbyl group;

R^* is absent, hydrogen, a Group 14 atom containing group, a halogen, or a heteroatom containing group; and

Application No.: 10/777,563

Response dated: November 1, 2005

Reply to Office Action October 13, 2005

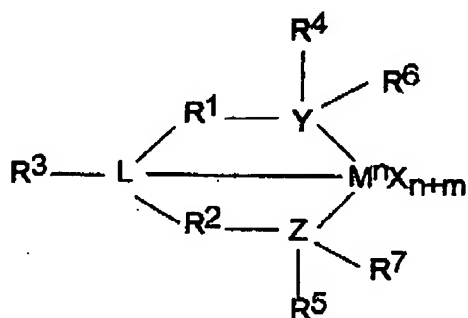
- wherein said Group 15 containing bidentate or tridentate ligated metal catalyst compound is added to a polymerization reactor in one of a slurry, a solution, an emulsion, a dispersion or a suspension.
18. (Previously Presented) The process of claim 17, wherein R^8 to R^{12} are independently a methyl, ethyl, propyl or butyl group and X is a substituted aryl group having greater than 10 carbon atoms.
 19. (Previously Presented) The process of claim 17, wherein R^8 to R^{12} are methyl groups, and X is a alkyl substituted with an aryl group.
 20. (Previously Presented) The process of claim 19, wherein said X is benzyl, where n is +4, and M is zirconium or hafnium.
 21. (Previously Presented) The process of claim 20, wherein L, Y, and Z are nitrogen, R^1 and R^2 are a hydrocarbon group, R^3 is hydrogen, and R^6 and R^7 are absent.
 22. (New) The process of claim 21, wherein the process further comprises an activator, and wherein the process is a continuous gas phase process.
 23. (Previously Presented) The process of claim 21, wherein the process further comprises an activator, and wherein the process is a continuous slurry phase process.
 24. (Previously Presented) The process of claims 22 or 23, wherein the olefin(s) is ethylene or propylene.
 25. (Previously Presented) The process of claims 22 or 23, wherein the olefins are ethylene and at least one other monomer having from 3 to 20 carbon atoms and wherein said activator comprises one of alumoxane, modified alumoxane, neutral ionizing activators, or ionic ionizing activators.
 26. (Previously Presented) The process of claim 25, wherein the process further comprises supporting on a carrier, wherein said Group 15 containing bidentate or tridentate ligated metal catalyst compound, said activator, and said carrier are spray dried.
 27. (Previously Presented) A process for polymerizing olefin(s) comprising combining said olefin(s) in the presence of a catalyst system comprising a Group 15 containing bidentate or tridentate ligated hafnium or zirconium catalyst

Application No.: 10/777,563

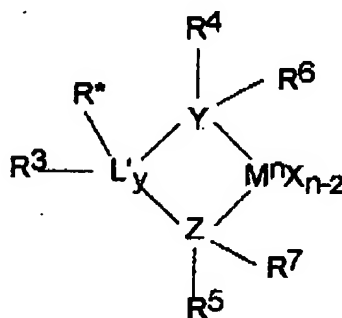
Response dated: November 1, 2005

Reply to Office Action October 13, 2005

compound, wherein the process is conducted at a temperature from between 50° C to 200° C, and wherein the catalyst compound is represented by the formulae:



or



wherein M is hafnium or zirconium;

each X is a benzyl leaving group;

y is 0 or 1;

n is +4;

m is -2;

L is nitrogen;

L' is carbon, silicon or germanium;

Y is nitrogen;

Z is nitrogen;

R¹ and R² are independently a C₂ to C₆ hydrocarbon group;

1999U029.Reissue.US.1.111.11.1.05.doc

Application No.: 10/777,563

Response dated: November 1, 2005

Reply to Office Action October 13, 2005

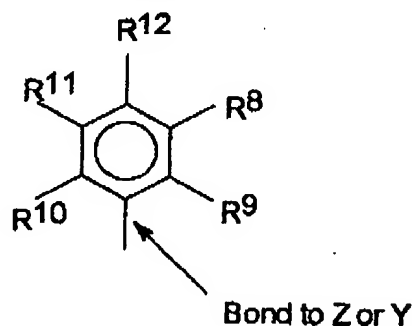
R^3 is hydrogen;

R^1 and R^2 may be interconnected to each other;

R^6 and R^7 are absent;

R^* is absent, hydrogen, a Group 14 atom containing group, a halogen, or a heteroatom containing group;

wherein R^4 and R^5 are represented by the formula:



wherein R^8 to R^{12} are methyl groups; and

wherein said Group 15 containing bidentate or tridentate ligated hafnium or zirconium catalyst compound is added to a polymerization reactor in one of a slurry, a solution, an emulsion, a dispersion or a suspension.

28. (Previously Presented) The process of claim 27, wherein the catalyst system further comprises an activator.
29. (Previously Presented) The process of claim 28, wherein said activator comprises one of alumoxane, modified alumoxane, neutral ionizing activators, or ionic ionizing activators.
30. (Previously Presented) The process of claim 29, wherein the process further comprises a support, and wherein said Group 15 containing bidentate or tridentate ligated hafnium or zirconium catalyst compound, said activator, and said support are spray dried.
31. (Previously Presented) An olefin polymerization process comprising combining olefin(s), in the presence of a catalyst system comprising a Group 15 containing bidentate or tridentate ligated hafnium or zirconium catalyst compound, and activator, and a carrier, wherein the process is conducted at a

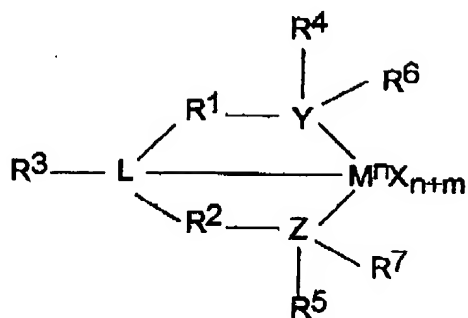
1999U029.Rejama.U8.1.111.11.1.05.doc

Application No.: 10/777,563

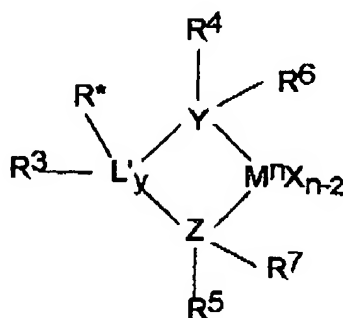
Response dated: November 1, 2005

Reply to Office Action October 13, 2005

temperature from between 50° C to 200° C, and wherein the catalyst compound is represented by the formulae:



or



wherein M is hafnium or zirconium;

each X is a benzyl leaving group;

y is 0 or 1;

n is +4;

m is -2;

L is nitrogen;

L' is carbon, silicon or germanium;

Y is nitrogen;

Z is nitrogen;

R¹ and R² are independently a C₂ to C₆ hydrocarbon group;

1999U029.Reissue.US.1.111.11.1.05.doc

- 10 -

Application No.: 10/777,563

Response dated: November 1, 2005

Reply to Office Action October 13, 2005

R^3 is hydrogen;

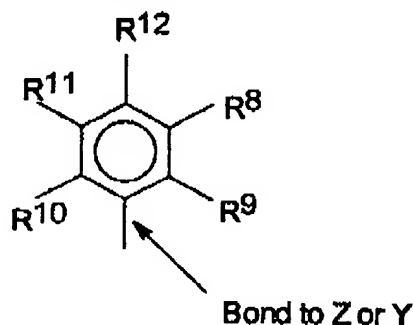
R^1 and R^2 may be interconnected to each other;

R^6 and R^7 are absent;

R^* is absent, hydrogen, a Group 14 atom containing group, a halogen, or a heteroatom containing group; and

wherein said Group 15 containing bidentate or tridentate ligated hafnium or zirconium catalyst compound is added to a polymerization reactor in one of a slurry, a solution, an emulsion, a dispersion or a suspension;

wherein R^4 and R^5 are represented by the formula:



wherein R^8 to R^{12} are methyl groups;

wherein said activator comprises one of alumoxane, modified alumoxane, neutral ionizing activators, or ionic ionizing activators;

and wherein said Group 15 containing bidentate or tridentate ligated hafnium or zirconium catalyst compound, said activator, and said carrier are spray dried.